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Increasing Information Fluence in Knowledge Work

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Modal fragmentation describes the alternation between information bearing media within information processes. In order to make processes more efficient, it is a common target to avoid modal fragmentation aiming at an increased number of transactions. While improved efficiency may be achieved when programs automate the retrieval and handover of data, the same underlying assumption does not hold when it is applied to knowledge-intensive tasks of knowledge workers. In current information processing systems, knowledge workers take over the time-intensive, context-dependent and complex tasks of searching and dispatching information from and between information silos. Thus, the knowledge worker wastes time because of impeded information fluency and disconnected data.

The Semantic Web [1] has been designed to dissolve the fragmentation of data into information silos by providing RDF as a seamless data model able to bridge between information from different sources and ontologies [2] as a means to convey the semantics of data. However, with the core data infrastructure, the question remained open of how to organize information infrastructures and information processes in ways that are compatible with the open distributed Semantic Web infrastructure.

At the University of Koblenz-Landau, we have worked on two infrastructures that allow for a seamless information flow between information sources and information users.

1. Based on a highly scalable infrastructure for distributed semantic information access [3], we have developed the SemaPlorer application [4] that combines geographic map data with enrichments from a heterogeneous set of data sources (Flickr, GeoNames, Swoogle, Wikipedia, etc.) and allows for context-supported browsing of this data.
2. Based on novel modelling of core ontologies, we have developed a semantic approach for personal information management [5]. This semantic desktop enhances a standard PC desktop environment by the capability to cross-link data and use these cross-links for exploration of personal information.

Eventually, we have investigated how such a Semantic Web infrastructure benefits the knowledge worker. Based on existing classification of user tasks, we have performed both formative and summative evaluations. Our findings show that complex information management tasks are facilitated by a semantic data management infrastructure. We conclude with an outlook to new challenges and recent work on interacting with linked data [7].

REFERENCES

- D. Fensel, J. Hendler, H. Lieberman, W. Wahlster (eds.) *Spinning the Semantic Web: Bringing the World Wide Web to Its Full Potential*. MIT Press 2003.
- S. Staab, R. Studer (eds.). *Handbook on Ontologies*. International Handbooks on Information Systems, Springer Verlag, 2nd edition, 2009.



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- S. Schenk, S. Staab. Networked Graphs: A Declarative Mechanism for SPARQL Rules, SPARQL Views and RDF Data Integration on the Web. In: *Proc. of WWW-2008, 17th Int. World Wide Web Conference*, Beijing, China, April 21-25, 2008, pp. 585-594.
- S. Schenk, C. Saathoff, S. Staab, A. Scherp. SemaPlorer – Interactive Semantic Exploration of Data and Media based on a Federated Cloud Infrastructure. *Journal of Web Semantics*, Elsevier, To appear 2009/2010.
- T. Franz, R. Arndt, S. Staab. The X-Cosim Integration Framework for a seamless semantic desktop. In: *K-CAP 2007 – Proceedings of the Fourth International ACM Conference on Knowledge Capture*. 28-31 October 2007 Whistler, BC.
- T. Franz, A. Scherp, S. Staab. Are Semantic Desktops Better? Summative Evaluation Comparing a Semantic against a Conventional Desktop. In: *Proc. of K-Cap 2009. Fifth Int. Conference on Knowledge Capture*. ACM Press. Sep 1-4, 2009, Redondo Beach, CA, USA.
- T. Franz, A. Schultz, S. Sizov, S. Staab. TripleRank: Ranking Semantic Web Data by Tensor Decomposition. In: *Proc. of ISWC-2009 – International Semantic Web Conference*, Westfield, USA, Oct 25-29, 2009.